

WHAT IS CLAIMED IS:

1. A reflection mask blank for EUV exposure, comprising:
  - a substrate;
  - a multilayer film formed on the substrate to reflect EUV light;
  - an intermediate layer formed on the multilayer film; and
  - an absorber layer formed on the intermediate layer to absorb the EUV light;

the intermediate layer being formed by a material containing Cr and at least one element selected from the group consisting of N, O, and C.
2. A mask blank as claimed in claim 1, wherein:

the absorber layer is formed by a material containing Ta.
3. A reflection mask for EUV exposure, comprising:
  - a substrate;
  - a multilayer film formed on the substrate to reflect EUV light;
  - an intermediate layer formed on the multilayer film;
  - an absorber layer provided with a pattern and formed on the intermediate layer to absorb the EUV light;

the intermediate layer being formed by a material containing Cr and at least one element selected from the group consisting of N, O, and C.
4. A mask as claimed in claim 3, wherein:

the absorber layer is formed by a material containing Ta.
5. A method of producing a reflection mask for EUV exposure by the use of the reflection mask blank for EUV exposure claimed in claim 1 or 2.
6. A method of producing a semiconductor device, comprising the steps of:

transferring a pattern on a semiconductor substrate by the use of the reflection mask for EUV exposure claimed in claim 3 or 4.